

Claims

1. A switching mode power supply having a transformer, a transistor
controlling the current through a primary of the transformer, and a control
unit for controlling the switching of the transistor to generate current pulses
5 in the transformer, the control unit being arranged to receive a signal from
the secondary side of the transformer and compare it with two threshold
levels defining a range, the control unit enabling switching of the transistor
in the case that the signal is outside the range in a first direction, and
disabling switching of the transistor in the case that the signal is outside the
10 range in a second direction.
2. A switching mode power supply according to claim 1 in which the signal is
inversely related to the power drawn by the load, and the control unit
enables switching when the signal is above a first threshold value, and
disables switching of the transistor in the case that the signal is below a
15 second lower threshold value.
3. A switching mode power supply according to claim 1 in which the signal is
directly related to the power drawn by the load, and the control unit enables
switching when the signal is above a first threshold value, and disables
switching of the transistor in the case that the signal is below a second
20 lower threshold value.
4. A switching mode power supply according to claim 1, claim 2 or claim 3
further comprising a blanking window definition circuit which prevents the
control unit for disabling switching of the transistor in the case that the
signal is below the second lower threshold value for less than a preset
25 period of time.
5. A switching mode power supply according to claim 1, claim 2, claim 3 or
claim 4 further comprising a current limitation circuit arranged to receive an
signal indicative of the current through the primary of the transformer and to
30 limit the current pulse if the signal indicates that the current is above a
threshold value.

6. A switching mode power supply according to claim 5 having a memory device for storing data indicating whether the switching mode power supply is operating in a certain power supply mode, and arranged to enable the current limitation circuit only in the case that the power supply is operating in that power supply mode.
7. A switching mode power supply having a transformer, a transistor controlling the current through the primary of the transformer, a control unit for controlling the switching of the transistor to generate current pulses in the transformer, a memory device for storing data indicating whether the switching mode power supply is operating in a certain power supply mode, and a current limitation circuit arranged to receive an signal indicative of the current through the primary of the transformer and to limit the current pulse if the signal indicates that the current is above a threshold value and the memory device indicates that the switching mode power supply is operating in said power supply mode.
8. A switching mode power supply according to any preceding claim in which the control unit is a single integrated circuit logic device.
9. A switching mode power supply according to claim 8 in which at least one of the threshold values is determined by a pin input of the logic device.
10. A switching mode power supply according to claim 8 or claim 9 in which at least one of the threshold values is determined by an internal reference voltage of the integrated circuit.
11. An apparatus incorporating and powered by a switching mode power supply according to any preceding claim.
12. A method of operating a power supply having a transformer, a transistor controlling the current through the primary of the transformer, and a control

unit for controlling the switching of the transistor to generate current pulses in the transformer, the method including:

receiving a signal from the secondary side of the transformer and comparing it with two threshold levels, and

5 enabling switching of the transistor in the case that the signal is outside the range in a first direction, and disabling switching of the transistor in the case that the signal is outside the range in a second direction.

13. A method of operating a power supply having a transformer, a transistor controlling the current through the primary of the transformer, and a control
10 unit for controlling the switching of the transistor to generate current pulses in the transformer, the method including:

receiving an signal indicative of the current through the primary of the transformer and,

15 in the case that the power supply is operating in a certain power supply mode, to limit the current pulse if the signal indicates that the current is above a threshold value.